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MONTANA Industrial Horizons
STATE PLANNING BOARD Vol. 9—No. 2 Mar.-Apr. 1964

Western States Navy R & D Clinic
At Montana State College In July

The preliminary program of the Western States Navy Research and Development Clinic lists almost 200 speakers, panelists, and technical counselors who will be in attendance to present the Navy's technological program, problems and needs to industry. The clinic is being held at Montana State College in Bozeman July 22, 23 and 24.

Paul Wylie, managing director for the clinic, says that response to the preliminary registration survey indicates that attendance may surpass that of any previous clinic. Requests for registration material have come in from every state except one, Hawaii. A colorful Montana vacation packet mailed to inquirers by the State Advertising Department has undoubtedly added to the interest in this summer clinic in the Rockies between Glacier and Yellowstone National Parks.

The opening general session Wednesday morning, July 22, will be addressed by Governor Tim Babcock; Dr. Leon H. Johnson, President of Montana State College; Admiral William A. Schoech, USN, Chief of Naval Material; Admiral W. A. Brockette, USN, Chief of the Bureau of Ships; Admiral Frank L. Pinney, Jr., USN, Inspector General, Bureau of Naval Weapons; and Dr. James T. Grey, Jr., Director of Research Planning, rocket operations, Thiokol Chemical Corporation. Dr. Robert Johns, President of Montana State University, will act as moderator.

Besides participants from government departments and universities, there will be speakers from 30 industries such as General Motors, The Boeing Co., Hughes Aircraft, Northrop Corp., Radio Corp. of America, General Dynamics Corp., Lockheed Aircraft, Curtiss-Wright Corp., North American Aviation, Electric Boat Co., McDonnell Aircraft, and Minneapolis-Honeywell.

Events scheduled for wives of participants include a luncheon and Western style show on Wednesday, on Thursday a tour up beautiful Gallatin Canyon for the ladies and children to the famous Nine Quarter Circle Dude Ranch for a midday barbecue, and on Friday, Mrs. Tim Babcock, wife of the Governor of Montana, will preside at a brunch.

Because of the interest shown in the appearance of Dr. von Braun at the clinic, Wylie said arrangements have been made for him to speak in the MSC field house following the banquet the evening of July 23, and attendance will be open to the public. The title of his address is "Man to Moon . . . Why and How," and he will use slides to illustrate his remarks.

A condensation of the preliminary program is presented on pages 3 and 4 of this newsletter, together with information for obtaining registration material.

Vice-Adm. Wm. A. Schoech, USN

Appointed Chief of Naval Material in July of 1963. He is a 1928 graduate of the U. S. Naval Academy, and subsequently earned a Naval Aviator designation at Pensacola Naval Air Station and a Master of Science degree in Aeronautical Engineering from California Institute of Technology. He will address the opening session of the R. & D. Clinic.

Dr. Wernher von Braun

Director of the George C. Marshall Space Flight Center, Huntsville, Alabama. Born and educated in Germany, he began his early experiments with rockets as a student in 1930 and is now considered the world's foremost rocket expert. He directed development of the V-2 rocket, and came to the United States in 1945 as technical advisor for the U. S. Department of Defense. He will address the July 23 banquet meeting of the R. & D. Clinic.

R & D Clinic
Preliminary Program
Pages 3 and 4

TELEVOX ELECTRONIC DEVICE HAS TREMENDOUS SALES APPEAL

Barna Majoros heard and read that there is probably a great potential for the electronics industry in Montana. He has indeed proved this to be true.

Majoros is a refugee from Hungary. He came to Billings under sponsorship of the Billings Refugee Council in 1947. The twelve years previous to this he had spent in Russian labor camps in Siberia and Hungary. He finally managed to get to Vienna, where he met an American official who arranged for him to come to America and Billings.

Prisoner to President

He is now president of Televox, Inc., Sound Devices Manufacturing Co., and developer of the stereo pillow which they manufacture. (He has a degree in electronics from the University of Budapest.)

The stereo pillow is Majoros' answer to personal listening without cumbersome headphones or ear plugs. Simply described, it is two or more stereo speakers encased in an attractive head rest that can be placed on a chair, sofa or bed. The listener plugs into his radio, television set, stereo, hi-fi, tape recorder or anything else with a headphone jack. Then he listens with no one else disturbed .

Popular Sales Item

Majoros assembled the first ones in 1962. To expand his market and to assure Billings capital that he had something people wanted, he made a selling trip to California. By numerous demonstrations and calling on major distributors, he returned to Billings with orders amounting to $87,000. And the orders continued to come in. One company ordered 21,000 of them.

Even so, he says it wasn't easy to find operating capital, but he did find it, and was able to move his plant from his home into a 6,000 sq. ft. plant in the NP Industrial Site. He began manufacturing the pillows on an assembly line basis in November of last year. In just the first three months of 1964 he has orders for 50,000.

He is presently employing 16 people. The pillows are assembled by five persons in 30 movements before going into the gold, red or blue counter display boxes which Majoros designed. He plans to expand his staff to 40 to try to keep up with orders.

Televox makes six styles of stereo pillows, four for the home, one for motels and one for hospitals, usable on any stereo or monaural sound source. The retail price ranges from $16 to $30.

Just First Step

His stereo pillow is only the first step in Majoros' plan for electronics related manufacturing in Billings. He expects to add others later.

Other officers of the corporation are Guy Marble, vice president and Stuart W. Connor, secretary.

J. Neils Co. Expands Stud Mill

St. Regis Paper Co. has announced it will double the capacity of the J. Neils Lumber Co. stud mill at Libby. Construction is to start this spring and plans call for completion before the end of the year.

The expansion will consist of the necessary additions to the present buildings, new barking and chipping facilities, a four-band Scragg saw plus the necessary edgers, salvage saws and trimmers, and an additional bull chain, and a complete planer setup and expansion of loading dock and storage facilities.

Construction of two additional stud mill kilns is underway which will enable the present stud mill to be put onto a three shift basis for part of the year to help make up for the loss of operating time which will be experienced when the expansion necessitates shutdowns of the present stud mill. The third shift will also be used to train new and additional employees that will be required for the expanded operation.

Will Double Employment

St. Regis officials estimate the expansion will mean about $250,000 additional payroll annually, and almost doubling of the present complement of 54 employees. It will also require an increase in logging personnel to some extent.

A major decision for the expansion of the stud mill centered on the increasing availability of small logs that cannot now be economically processed through the sawmills.

Building Boom in Libby

Several other notable construction projects have been completed or are underway in Libby. A new million dollar high school and gymnasium are scheduled for completion by September. A new 15-unit apartment building has just been completed in downtown Libby and Libby Development and Construction Co. has completed ten new houses, with 10 to 15 more scheduled for construction this year west of Libby. The county library will move into its new $70,000 facility in April. Under construction is an addition to the courthouse to house the sheriff's offices and a new fire hall has just been completed. Still in the building stage are a motel and several church projects.

In the News . . .

Montana-Dakota Utilities Co. will spend $3,890,000 in Montana in 1964 for additions and improvements in their electrical and gas transmission lines in the Culbertson-Glendive-Baker area and to install three gas compressors at the Baker compressor building.

* * *

Farmers Union Central Exchange refinery at Laurel has started a $1.3 million expansion program. Under construction is a propane de-asphalting unit. The unit will reduce refinery supplies of residual fuel oil and increase supplies of more marketable gasoline, burner and diesel fuel. It will process about 4,000 barrels of asphalt a day.

* * *

Mountain States Telephone Co. plans a construction program for Montana in excess of $12 million this year. Already completed in 1964 is a new microwave route extending from Glendive to Baker. Other plans call for installation of dial telephone service at Culbertson and Plentywood where new buildings recently have been completed. Replacement of present central office facilities at Brockton and Froid with community dial systems are scheduled for completion this summer. A new two-story building will be constructed in Missoula adjacent to the present telephone station.

* * *

Plum Creek Lumber Co., Columbia Falls, started construction in April of a $1 million plywood manufacturing plant addition to the present lumber mill. The expansion will increase Plum Creek's employment in Columbia Falls by nearly 100. Plywood production is expected to start about Nov. 1.

* * *

The **Air Force** estimates that more than $38 million will be expended in central Montana to operate and maintain the Minuteman missile complex which extends over a 10,000 sq. mi. area in the state. The estimate includes operations and maintenance funds expenditures plus personnel costs totaling $13,864,000, and $24,490,000 for Malmstrom Air Force Base at Great Falls, headquarters for the complex.

* * *

Montana Power Company will construct a 79-mile gas transmission line between Whitehall and Dillon this summer. The $2 million project is scheduled for completion by mid-August and will bring natural gas service to customers in Dillon, Sheridan and Twin Bridges.

Humble Oil & Refining Co. will spend more than $19 million during 1964 in its eight-state Rocky Mountain area. I. J. Staid, manager of Humble's Billings refinery, said that $7.2 million of the total amount will be spent in Montana, the largest figure for any state in the Denver area.

Western States Navy Research and Development Clinic

July 22, 23, 24, 1964

MONTANA STATE COLLEGE
Bozeman, Montana

Preliminary Program

(Condensed)

Organized in cooperation with the Office of Naval Material in order that large and small business, industrial firms, research laboratories, academic institutions with research facilities, and others, may find challenging opportunities in the research and development possibilities presented and discussed at the Western States Clinic. Space does not permit listing of all speakers here.

Opening General Session—July 22

Moderator

Dr. Robert Johns, President
Montana State University.

"Space to Grow in the Space Age"
The Honorable Tim Babcock,
Governor of Montana.

"Our Richest Resource"
Dr. Leon H. Johnson, President,
Montana State College.

"The Navy in 1984"
Vice Admiral William A. Schoech,
USN, Chief of Naval Material.

"Future R & D Programs of the Bureau of Ships"

Rear Admiral W. A. Brockett, USN,
Chief of the Bureau of Ships.

"Future R & D Programs of the Bureau of Naval Weapons"

Rear Admiral Frank L. Pinney, Jr.,
Inspector General, Bureau of Naval Weapons.

"A Contractor's Approach to the Independent R & D Program"

Dr. James T Grey, Jr., Director of Research Planning, Rocket Operations, Thiokol Chemical Corporation.

Luncheons

Wednesday, July 22

Vice Admiral John S. McCain, USN,
Commander-in-Chief, Amphibious Forces,
Atlantic Fleet.

Thursday, July 23

To Be Announced.

Friday, July 24

Dr. Lysle A. Wood, Vice-Pres., General Manager
Aero-Space Division, The Boeing Co.

Banquet—July 23

The Honorable Mike Mansfield, Senator from Montana and Senate Majority Leader.

Dr. Wernher von Braun, Director, George C. Marshall Space Flight Center, Huntsville, Ala.

PANEL SESSIONS

ELECTRONICS PANEL

Microelectronics and Information Processing Research.

Communication Techniques Using Meteor Trail Propogation and Space Commuications.

Time and Frequency.

Control Systems (Classified).

Optical-Electronic Devices (Classified)

MATERIALS AND FUELS PANEL

Department of Defense Materials Research
Metallurgical and Related Research Problems.
Coal, Wood and Water Research.
Fuels and Propellants.

NAVAL OCEANIC ENVIRONMENT PANEL

Operational Anti-submarine Warfare In Oceanographic Environment (Classified).

Ocean Engineering.

Panel Discussion—speakers on the three panels will conduct concurrent panel seminars in a round-table discussion so that problem areas may be fully explored.

SYSTEMS EFFECTIVENESS (Man-Machine) PANEL

The New Navy and Its Human Requirements.
Human Performance Requirements.
Man-Machine Capabilities.
Optimization of Man-Machine Performance.

(over)

WEAPONS SYSTEMS PANEL

U. S. Navy Bureau of Ships Presentation of Research and Development Program (Classified.)

Target Surveillance, SEA HAWK Program (Classified).

U S. Navy Bureau of Naval Weapons Presentation of Research and Development Problems (Classified.

Anti-Submarine Weapons, and Materials (1st half Classified).

SEMINARS

Research Contracts and Grants—primarily for the benefit of academic institutions interested in basic research contract opportunities and research grants in a wide variety of fields of endeavor.

Small Business Research and Development—particularly for the benefit of small business firms who may wish to participate in the Navy's $1.5 billion research and development program at either the prime contract or subcontract level. Small businessmen will be guided through the procedures followed by the Navy in awarding contracts for research and development as well as for production items.

Technical counselors will be present from all federal agencies to discuss research and development opportunities for all types of industries, large and small. Prime contractors are also furnishing technical counselors. These counselors will be available by appointment during the entire three days of the clinic.

Co-sponsoring states with Montana, are: Alaska, California, Colorado, Idaho, Minnesota, Nebraska, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

An administration fee of $30 includes three luncheons, pre-banquet social hour and banquet.

An administration fee of $10 for wives of registrants includes the ladies' luncheons, pre-banquet social hour, banquet and ladies' entertainment.

Housing is available in hotels and motels or on the campus. Special bus service will be available from hotel and motel areas to the MSC campus where all meetings will be held, and to transport clinic participants to and from the airport and railway station.

Supervised playground recreation will be available for small children during the time of the ladies' luncheons.

Those who are interested in attending the clinic, and who have not already contacted clinic headquarters, may write directly or use the form below to receive a copy of the preliminary program with complete registration forms and information, including a form for security clearance application.

— —

Managing Director

Western States Navy R & D Clinic

410 First National Bank Building

Bozeman, Montana

Please send me a copy of the Preliminary Program for the Navy R & D Clinic to be held in Bozeman, July 22, 23, and 24, with complete registration forms and information.

NAME_____ TITLE_____

ORGANIZATION_____

ADDRESS_____

_____

_____

FARM EQUIPMENT MADE IN FORSYTH

Go modern—buy the rack that gives the most! This is the slogan of Curtis Rack and Endgate of Forsyth.

E. V. "Ed" Curtis and his wife manufacture stock racks. They are custom made to fit any make or model of truck.

Curtis developed his rack after some unfortunate experiences working around conventional racks. There was every possibility of being kicked or trampled trying to load an animal; you couldn't climb up the sides and it was difficult to get the tail gates closed, particularly if the animal was balky.

Safe, Efficient

So Curtis designed his with a safety catwalk along both sides of the rack, for easier handling of animals and as a safety feature for the handler. The tailgate is mounted on rollers and opens by sliding sideways. One lever locks it at top and bottom. Or it can be locked inside the rack out of the way.

The frame is made of pipe and the sides of expanded metal, which makes the rack both light in weight and less wind resistant.

Makes Other Equipment

He also makes a carrier to mount over the cab for carrying a spare tire, luggage, feed, etc., and a canvas cover that

unfolds across the top to protect the livestock.

He has designed a horse trailer that is an equally efficient piece of equipment.

Another Curtis product is a portable branding iron heater which operates on butane gas. It heats any iron evenly in 3 minutes or less and can keep 4 irons hot constantly. The company also makes branding irons.

Curtis employs two others besides himself and his wife. His plant is located across from the Forsyth Chamber of Commerce.

NEW PUBLICATIONS . . .

Montana, the big sky country—Centennial Edition. Centennial program and guide book. Beautiful, 64-page book containing over 50 full-color pictures depicting the Big Sky country. Fold-out portfolio of three C. M. Russell paintings suitable for framing. Literary contributors include A. B. Guthrie, Jr., John Steinbeck, Dorothy M. Johnson, Bob Fletcher, and H. G. Merriam. Edited by Michael S. Kennedy, director of the Montana Historical Society. Available for $2 from Historical Society, Helena, or Centennial headquarters in most Montana towns.

Natural Resources of Montana. A 68-page illustrated booklet prepared by the Department of the Interior. Includes sections on Montana's history, physical characteristics, Indian population, parks and recreation opportunities, agriculture, livestock and timber resources, water and power, fish and wildlife, minerals, and the programs of federal natural resource agencies in the state. Available for 50c from Superintendent of Documents, Government Printing Office, Washington, D. C., 20402.

Three Forks Firm Processing Feedlot Byproduct

A $200,000 plant to process manure into a mulch and fertilizer went into production at Three Forks in February. The company was incorporated in July of 1963 after a comprehensive study was made of similar plants in the East and Midwest. James L. Hayden, of Three Forks, is president of the company; other officers are C. M. Darling, vice president; G. M. Kitrell, secretary; and Kathryn L. Wagner, treasurer; all of Washington.

The Three Forks Manufacturing Co. is located near one of the largest feedlots in the state where it obtains the raw material for processing. The manure is hauled from the feedlot in three-ton trucks from which it is shredded as it is unloaded into stockpiles at the plant. It is then fed into another shredding machine containing 178 hammers turning at 1800 r.p.m.'s to loosen all foreign material, such as rocks, wire, boards, etc., and screened. Everything smaller than ½ in. in diameter drops through the screen onto a conveyor. The waste is dumped into a waiting truck.

The screened material moves into a drum which is 9 ft. in diameter and 67 ft. long. Four Venturi type burners give a heat of 1350° F. at the face of the drum. As the manure flows through the drum it is rolled and heated. A 51 in. induction fan pulls the dry material out of the drum and blows it into an 84 in. cyclone where the steam is passed off.

From the cyclone the manure drops by gravity into a hammer mill with ⅛ in. screens. After the hammering process it is again picked up by a fan, blown into a cyclone and then dropped into a final sifter with 1/16 in. perforations. The finished product is taken by bucket elevator to two holding bins above the baggers in the warehouse.

The bins hold 25 tons of finished material. They are lined with aerators and vibrators to keep the material flowing. The two baggers have a capacity of four 50-lb. bags per minute.

The plant requires six men per shift. At the present time the plant is operating one eight-hour shift. More shifts may be added later in the spring.

Capacity of the plant is six tons of finished material per hour. The fertilizer is sold in 50-lb. bags and distributed by Safeway, Buttreys, Sears & Roebuck and Big Horn Supply Co.

Hayden says the product makes an excellent mulch, contains many fertilizer elements, is weed free, purified, and is extremely good as a turf builder and plant starter. Plant capacity allows for additional sales and Hayden said he would be glad to hear from other potential distributors.

MSC Electronics Lab Has Six Research and Development Units

The Electronics Research Laboratory is the research and development organization for the Electrical Engineering Department at Montana State College. The laboratory operates under the Endowment and Research Foundation, which is a non-profit corporation.

The laboratory has basically three objectives. First, it provides an effective graduate program for students by giving them valuable experience in research and development projects as well as financially supporting their education. Secondly, it provides the faculty with research and development activities to keep them technically up to date. Last, but not least, the laboratory provides the opportunity for trained engineers and scientists to pursue their careers in research and development in Montana, which also aids Montana in its economic development. In addition, the laboratory provides important service to industry and government.

Since its beginning in 1956, the laboratory has grown from an initial staff of three to its present staff of sixty. Of the current employment of sixty persons, twenty-five are permanent staff members and twenty-four are graduate students working as graduate assistants. The laboratory is continuing its growth and current planning calls for the entry into new electronic technology areas as well as developing new research sponsors.

Recently, the laboratory has been organized into six research and development groups that typify the interests of the key staff members as well as the needs of the customers.

The Montana Radio Observatory under Dr. D. K. Weaver, Jr., has been and is active in meteor research and systems which provide effective methods of communications beyond the horizon utilizing ionized meteor trails. This work is currently being sponsored by the Boeing Company. Also, research in lighting is progressing with the development of a direction finding system for the U. S. Forest Service as an aid to locating forest fires.

The Digital Techniques group under Dr. Byron Bennett is working in the area of handling and processing digital information such as is used in communications and computer systems. This group has also been active in the field of high temperature transducer development.

The Instrumentation group under the direction of R. W. Weeks, has been involved in a variety of instrumentation projects for various research activities within Montana State College and for outside sponsors. This group is also developing signal analysis techniques for the U. S. Army Electronics Research and Development laboratory at Fort Monmouth, New Jersey. Future plans for this group call for development and fabrication of solid state devices that are playing such an important role in modern electronics and space age.

The Systems Development group being supervised by C. M. Sorvag primarily serves military and space-related government activities. Sponsors of projects in this group include the National Aeronautics and Space Administration, U. S. Army Electronics Laboratory at San Diego, California. Current programs in this group are related to radio direction finding and space communications techniques.

The Microwave Technology group under Kenneth Marcotte is entering the field of microwave communications and is primarily concerned with microwave synthesizers at the outset. Sponsors of this group include the Bonneville Power Administration, which is supporting a project on a telemetering system for use within large power substations.

The Physical Electronics group under Joseph Christie is concerned with advanced electronic development in the field of microwave plasma and related areas.

The past year has seen the support of some thirteen sponsors both by private industry and government. The next year should show a substantial increase in sponsors as well as support in research and development.

New Gimmick Sells Milk

NRG (Naturally Real Good) Corporation, a newly formed concern located in Minneapolis, is franchising creameries to bottle milk and chocolate milk in pop bottle containers for refrigerated dispensing machines.

"It's so simple that we are almost embarrassed that we didn't try it before," says the general manager of Cass-Clay Creamery in Fargo, North Dakota, the first firm franchised to distribute the product. "I've never seen an item in our business as 'hot' as this one is right now in sales appeal."

It sells for 10c and the bottle fits all such vending machines now in use.

Russell Stamp

The Post Office Department issued a 5-cent multi-colored stamp in March, featuring the painting "Jerked Down," by C. M. Russell, Montana's famed cowboy artist. It is one of the fine arts series of stamps being printed. The painting was done by Russell in 1907 in Great Falls and now hangs in the Gilcrease Institute of American History and Art at Tulsa, Oklahoma.

PHYSICIAN WANTED!

Stanford, county seat of Judith Basin County, is looking for a part-time or semi-retired physician. Facilities include a small clinic, partly equipped. Population of the county is about 3,000. The town is on a main highway between Great Falls and Lewistown. Inquiries may be directed to Mr. Irvin Larson, c/o Chamber of Commerce, Stanford.

Industrial Horizons

Newsletter—Vol. 9, No. 2. Mar.-Apr. 1964

Reports on business concerns appearing in this publication do not constitute an endorsement of either the concern named or its products. Statements in this newsletter do not reflect Board policy unless official action is reported.

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